REMARKS

A. Request for Reconsideration

Applicants have carefully considered the matters raised by the Examiner in the outstanding Office Action but remain of the position that patentable subject matter is present. Applicants respectfully request reconsideration of the Examiner's position based on the amendments to the claims and the following remarks.

B. The Invention

The present invention is directed to a radiation image conversion panel and method of forming the same.

In one of the novel aspects of the invention, the radiation image conversion panel is composed of a support exhibiting a thermal conductivity of 0.1 to 20 W/mK, wherein the support is made of a plurality of layers and the uppermost layer of the support, the layer closest to the phosphor layer, exhibits a glass transition temperature of 80 to 350 °C.

The support having the specified thermal conductivity of the invention results in uniform heat distribution and heat dissipation in the course of forming columnar crystals on the support. As a result, the columnar crystals have a small top diameter and relatively short height leading to a homogeneous

activator distribution in the phosphor layer (page 5, lines 13-21).

Also, the uppermost layer of the support exhibiting the specified glass transition temperature leads to superior luminance and sharpness as shown in Table 1 at page 33 of the application (page 6, lines 12-16).

C. Claim Status and Amendments

Claims 1-8, 10-18 and 20-22 are presented for further prosecution. Claims 9 and 19 have been cancelled while claims 21 and 22 have been added by this amendment.

Claim 1 has been amended to include the limitations of claim 9, namely, to recite that the support is composed of plural layers. Claim 9 has been cancelled. Claim 1 has also been amended to recite the glass transition temperature of the uppermost layer of the plural layers. Support for the glass transition temperature can be found at page 6, lines 12-13 where it is explained that the adhesive layer of the support exhibits a specified Tg, and in Figure 1 where adhesive layer 12' is the uppermost layer of support 11.

Claim 11 has been amended similarly to claim 1. Claim 19 has been cancelled.

Claims 13, 14, 16-18 and 20 have been amended to correct obvious typographical errors, since these claims are method claims that are dependent upon claim 11.

Claims 21 and 22 have been added to recite that the uppermost layer is a polyimide layer. Support for these claims can be found at page 6, lines 19-21.

D. The Office Action

Claims 1-9 and 11-19 had been rejected as being unpatentable over Isoda (US 2003/00364458) in view of Struye (US 2004/0026632) and Chen (US 6,396,066). Claims 10 and 20 had been rejected as being unpatentable over Isoda in view of Struye and Chen.

Isoda had been cited to teach a radiation image conversion panel having a support and a stimulable phosphor layer with a thickness within the claimed range. Struye had been cited to teach the thermal conductivity of the support of the invention. Struye had also been cited to teach a support composed of plural layers. Chen had been cited to teach a support composed of a polyimide layer, a carbon fiber plate layer and a polyimide layer in that order. The Examiner had taken the position that it would be obvious to combine the teachings of Isoda, Struye and Chen.

1. Struye does not teach or suggest a support having plural layers wherein the uppermost layer exhibits the claimed glass transition temperature

Claims 1 and 11 recite that the support exhibits a thermal conductivity of 0.1 to 20 W/mK, and that the uppermost layer of the plural layers of the support exhibits a glass transition temperature of 80 to 350 °C.

The Examiner had cited par. 33 of Struye against claims 9 and 19 to teach a support composed of plural layers. Par. 33 of Struye teaches an amorphous carbon support coated with a lead or lead compound foil layer. This is layer 2 in Fig. 2 of Struye and is positioned between support 3 and phosphor layer 1. However, this lead or lead compound layer does not exhibit a glass transition temperature of 80 to 350 °C as recited in claims 1 and 11.

As discussed above, the glass transition temperature of the uppermost layer recited in claims 1 and 11 leads to the enhanced effects of the invention. In Table 1 at page 33 of the application, it is shown that Inventive samples 4-9 having a glass transition temperature from 80 to 350 °C are superior to Comparative samples 1-3 having a glass transition temperature outside the claimed range.

Applicants therefore respectfully submit that Struye does not teach or suggest an upper layer of the support with the glass transition temperature of claims 1 and 11 or the significance of an upper layer with the glass transition temperature demonstrated by Table 1.

2. It would not be obvious to combine the teachings of Isoda, Struye and Chen

Isoda had been cited to teach a support having a thermal conductivity within the claimed range. Struye had been cited to teach an amorphous carbon support coated with lead layers. Chen had been cited to teach a support composed of a polyimide layer, a carbon layer and a polyimide layer in that order.

First, the Examiner had taken the position that it would be obvious to replace the PET support of Isoda with the lead coated carbon support of Struye. Then, the Examiner had taken the position that it would be obvious to replace the support of the combination of Isoda and Struye with the multi-layered support of Chen. Applicants respectfully submit that it would not be obvious to make such a combination and that even if such a combination were made, it would not result in the present invention.

First, by replacing the PET support of Isoda with the lead coated support of Struye, the glass transition limitation of

claims 1 and 11 would not be satisfied. Thus, one of skill in the art would not make this combination since the desirable glass transition limitation of the invention would be lost. The combination of Isoda and Struye therefore teaches away from the present invention.

Second, even if the support of the combination of Isoda and Struye were replaced by the support of Chen, one would still not arrive at the present invention because one is still left with a lead coated support and the lead coating does not satisfy the glass transition limitation of the claims.

Furthermore, no motivation exists for such a combination because Chen is completely silent about the effects on his particular support on a radiation image conversion panel having a phosphor layer formed by vapor deposition. In other words, Chen does not suggest the benefits of the claimed support used during vapor deposition discovered by the inventors of the present invention, namely, that a support having a specified thermal conductivity results in uniform heat distribution and heat dissipation in the course of forming columnar crystals on the support, thereby generating columnar crystals having a small top diameter and relatively short height which lead to a homogeneous activator distribution in the phosphor layer (page 5, lines 13-21). Also, Chen does not suggest the other benefits discovered by the inventors, namely, that the uppermost layer of

the support exhibiting the specified glass transition temperature leads to superior luminance and sharpness as shown in Table 1 at page 33 of the application (page 6, lines 12-16).

In sum, Applicants believe that those skilled in the art would not combine the teachings of Isoda, Struye and Chen, since the combination of Isoda and Struye teaches away from the glass transition limitation of the present invention, and since Chen does not teach or suggest the benefits of depositing a phosphor layer onto a support having a specified thermal conductivity and a specified glass transition temperature.

It is therefore respectfully submitted that the present invention is patentable over the cited references taken alone or in combination.

E. Conclusion

In view of the foregoing, it is respectfully submitted that the application is in condition for allowance and such action is respectfully requested. Should any extensions of time or fees be necessary in order to maintain this Application in pending

condition, appropriate requests are hereby made and authorization is given to debit Account # 02-2275.

Respectfully submitted,

LUCAS & MERCANTI, LLP

By: Donald C Lucas

Donald C. Lucas, 31,275
Attorney for Applicant(s)
475 Park Avenue South, 15th Floor
New York, NY 10016
Tel. # 212-661-8000

Encl: Return receipt postcard

DCL/mr